# Dell™ Latitude™ E6410/E6410 ATG Service Manual



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## Notes, Cautions, and Warnings

**NOTE:** A NOTE indicates important information that helps you make better use of your computer.

**CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.**

**WARNING: A WARNING indicates a potential for property damage, personal injury, or death.**

If you purchased a Dell™ n Series computer, any references in this document to Microsoft® Windows® operating systems are not applicable.

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# System Setup

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Your computer offers the following BIOS and System Setup options:

- Access System Setup by pressing <F2>
- Bring up a one-time boot menu by pressing <F12>
- Access the Intel® AMT settings by pressing <Ctrl> + <P>

## Entering System Setup

Press <F2> to enter System Setup and make changes to user-definable settings. If you have trouble entering System Setup using this key, press <F2> when the keyboard lights first flash.

## Boot Menu

Press <F12> when the Dell logo appears to initiate a one-time boot menu with a list of the valid boot devices for the computer. **Diagnostics** and **Enter Setup** options are also included in this menu. The devices listed on the boot menu depend on the bootable devices installed in the computer. This menu is useful when you are attempting to boot to a particular device or to bring up the diagnostics for the computer. Using the boot menu does not make any changes to the boot order stored in the BIOS.

## Navigation Keystrokes

Use the following keystrokes to navigate System Setup screens.

| Action | Keystroke(s) |
|---|---|
| Exit BIOS | <Esc> or click **Exit** |
| Apply a setting | click **Apply** |
| Reset defaults | click **Load Defaults** |
| Expand and collapse field | <Enter> |

## System Setup Menu Options

The following tables describe the menu options for the System Setup program.

| General | |
|---|---|
| **Option** | **Description** |
| **System Information** | This section lists the primary hardware features of your computer. There are no configurable options in this section.<br>• System Information<br>• Memory Information<br>• Processor Information<br>• Device Information |
| **Battery Information** | Displays the status of the battery and the type of AC adapter connected to the computer. |
| **Boot Sequence** | Specify the order in which the computer attempts to find an operating system.<br>• Diskette drive<br>• Internal HDD (IRRT)<br>• USB Storage Device<br>• CD/DVD/CD-RW Drive<br>• Onboard NIC<br>• Cardbus NIC<br>Also allows you to choose the **Boot list Option**. The options are: **Legacy** and **UEFI** |
| **Date/Time** | Displays current date and time settings. |

**NOTE:** System Configuration contains options and settings related to integrated system devices. Depending on your computer and installed devices, the items listed in this section may or may not appear.

| System Configuration | |
|---|---|
| **Option** | **Description** |
| **Integrated NIC** | Allows you to configure the integrated network controller. The options are: **Disabled**, **Enabled**, and **Enabled w/PXE**<br>Default Setting: **Enabled w/PXE** |
| | Allows you to configure the parallel port on the docking station. The options are: **Disabled**, **AT**, **PS2**, and **ECP** |

| | |
|---|---|
| **Parallel Port** | Default Setting: ECP |
| **Serial Port** | Allows you to configure the integrated serial port. The options are: **Disabled**, **COM1**, **COM2**, **COM3**, and **COM4**<br><br>Default Setting: **COM1** |
| **SATA Operation** | Allows you to configure the internal SATA hard drive controller. The options are: **Disabled**, **ATA**, **AHCI**, and **RAID On**<br><br>Default Setting: **RAID On** |
| **Miscellaneous Devices** | Allows you to enable or disable the following devices:<br><br>- Internal Modem<br>- Module Bay<br>- ExpressCard or PC Card<br>- Media Card, PC Card and 1394<br>- External USB Port<br>- Microphone<br>- eSATA Ports<br>- Hard Drive Free Fall Protection<br>- Camera and Microphone<br><br>Default setting: **All enabled**. |
| **Latitude ON™ Reader** | Allows you to configure the operating mode of the Latitude ON Reader. The options are: **Disabled** and **Enabled**<br><br>Default Setting: **Enabled** |
| **Keyboard Illumination** | Allows you to configure the keyboard illumination feature. The options are: **Disabled**, **Auto ALS and Input**, and **Auto Input Only**<br><br>Default Settings: **Disabled** |

| **Video** | |
|---|---|
| **Option** | **Description** |
| **Ambient Light Sensor** | To enable the Ambient Light Sensor, select the **Ambient Light Sensor** check box.<br><br>Default Settings: **Disabled** |
| **LCD Brightness** | Allows you to set the display brightness depending up on the power source (**On Battery** and **On AC**). |

| **Security** | |
|---|---|
| **Option** | **Description** |
| **Admin Password** | Allows you to set, change, or delete the administrator (admin) password. When set, the admin password enables several security features including:<br><br>- Restricts changes to the settings in Setup<br>- Restricts the boot devices listed in the <F12> Boot Menu to those enabled in the "Boot Sequence" field<br>- Prohibits changes to the owner and asset tags<br>- Substitutes for the system and hard drive password<br><br>**NOTE**: You must set the admin password before you set the system or hard drive password.<br>**NOTE:** Successful password changes take effect immediately.<br>**NOTE**: Deleting the admin password automatically deletes the system password as well.<br><br>Default Setting: **Not Set** |
| **System Password** | Allows you to set, change, or delete the system password. When set, your computer requests you to enter the system password every time your computer turns on or restarts.<br><br>**NOTE:** Successful password changes take effect immediately.<br><br>Default Setting: **Not Set** |
| **Internal HDD Password** | This field lets you set, change, or delete the password on the system's internal hard disk drive (HDD). Successful changes take place immediately and require a system restart. The HDD password travels with the hard drive, so the HDD is protected even when installed in another system.<br><br>Default Setting: **Not Set** |
| **Password Bypass** | Allows you to bypass the system and internal hard drive password prompts when your computer restarts or resumes from standby.<br><br>You can set **Password Bypass** to **Disabled** and **Reboot Bypass**.<br><br>**NOTE:** You cannot bypass the system or hard drive password when you turn on your computer that has been shut down.<br><br>Default Setting: **Disabled** |
| **Password Change** | Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.<br><br>Default Setting: **Allow Non-Admin Password Changes checked** |
| **Strong Password** | Allows you to enable of disable option to enforce strong passwords. If enabled, all passwords set on the computer must contain at least one uppercase character, one lowercase character and be at least 8 characters long. Enabling this feature automatically changes the default minimum password length to 8 characters.<br><br>Default Setting: **Disabled** |
| | Allows you to enable or disable the Trusted Platform Module (TPM) on the computer.<br><br>**NOTE**: Disabling this option does not change any settings you may have made to the TPM, or delete any information or keys you may have stored there. |

| | |
|---|---|
| **TPM Security** | When TPM is enabled, the following options are available:<br><br>- **Deactivate—**Disables the TPM. The TPM restricts access to the stored owner information and does not execute any commands that use TPM resources.<br>- **Activate—**Enables and activates the TPM.<br>- **Clear—**Clears the owner information stored in the TPM.<br><br>Default Setting: **Disabled** |
| **Computrace** | Allows you to enable or disable the optional Computrace software. The options are **Deactivate**, **Disable**, and **Activate**.<br><br>**NOTE**: The **Activate** and **Disable** options will permanently activate or disable the feature and no further changes will be allowed.<br><br>Default Setting: **Deactivate** |
| **CPU XD Support** | Allows you to enable or disable the Execute Disable mode of the processor.<br><br>Default setting: **Enabled** |
| **Non-Admin Setup Changes** | Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password. |
| **Password Configuration** | Allows you to determine the minimum and maximum length of Administrator and System passwords. |
| **Admin Setup Lockout** | Allows you to prevent users from entering Setup when an Administrator password is set. |

| **Performance** | |
|---|---|
| **Option** | **Description** |
| **Multi Core Support** | Enables or disables multi-core support for the processor. Setting options are: **All**, **1,** and **2**<br><br>Default Setting: **All** |
| **Intel® SpeedStep™** | Enables or disables the Intel SpeedStep feature.<br><br>Default Setting: **Enabled** |
| **Intel® TurboBoost™** | Enables or disables the Intel TurboBoost performance.<br><br>Default Setting: **Enabled** |

| **Power Management** | |
|---|---|
| **Option** | **Description** |
| **AC Behavior** | Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected.<br><br>Default Setting: **Wake on AC Disabled** |
| **Auto On Time** | Allows you to set the time at which the computer must turn on automatically.<br><br>You can set the of days, if any, when you would like the system to turn on automatically. The settings are **Disabled**, **Everyday**, or **Weekdays**.<br><br>Default setting: **Disabled** |
| **USB Wake Support** | Allows you to enable or disable the ability of USB devices to wake the computer from Standby.<br><br>This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the BIOS will remove power from all of the USB ports to conserve battery power.<br><br>Default setting: **Disabled** |
| **Wake on LAN / WLAN** | Allows the computer to turn on by a special LAN signal or from Hibernate state when triggered by a special wireless LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system.<br><br>- **Disabled** — Do not allow the system to power on when it receives a wake-up signal from the LAN or wireless LAN.<br>- **LAN Only** — Allow the system to be powered on by special LAN signals.<br>- **WLAN Only** — Allow the system to be powered on by special WLAN signals.<br>- **LAN or WLAN** — Allow the system to be powered on by special LAN or wireless LAN signals.<br><br>Default setting: **Disabled** |
| **ExpressCharge** | Allows you to enable or disable the ExpressCharge feature.<br><br>**NOTE:** ExpressCharge may not be available for all batteries. |
| **Charger Behavior** | Allows you to enable or disable the battery charger. If disabled, the battery will not lose power when the system is connected to an AC adapter but it will not charge either.<br><br>Default setting: **ExpressCharge** |

| **POST Behavior** | |
|---|---|
| **Option** | **Description** |
| **Adapter Warnings** | Allows you to enable or disable the BIOS warning messages when you use certain power adapters. The BIOS displays these messages if you attempt to use a power adapter that has too little capacity for your configuration.<br><br>Default setting: **Enabled**. |
| **Keypad (Embedded)** | Allows you to select one of two methods to enable the keypad that is embedded in the internal keyboard.<br><br>- **Fn Key Only** — The keypad is only enabled when you hold down the <Fn> key.<br>- **By Numlock** — The keypad is enabled when (1) the Num Lock LED is ON and (2) no external keyboard is attached. Note that the system might not notice immediately when an external keyboard is detached. |

| | |
|---|---|
| | **NOTE:** When Setup is running, this field has no effect—Setup works in the **Fn Key Only** mode.<br><br>Default setting: **Fn Key Only**. |
| **Mouse/Touchpad** | Allows you to select one of two methods to use pointing devices.<br><br>- **Serial Mouse** — Disable the integrated touch pad when an external Serial mouse is present.<br>- **PS/2 Mouse** — Disable the integrated touch pad when an external PS/2 mouse is present.<br>- **Touchpad-PS/2** — Leave the integrated touch pad enabled when an external PS/2 mouse is present.<br><br>Default setting: **Touchpad-PS/2**. |
| **Numlock LED** | Allows you to enable or disable the Num Lock LED when the computer boots.<br><br>Default setting: **Enabled**. |
| **USB Emulation** | Defines how the BIOS handles the USB devices. USB emulation is always enabled during POST.<br><br>Default setting: **Enabled** |
| **Fn Key Emulation** | Allows you to use the <Scroll Lock> key on an external PS/2 keyboard the same way you use the <Fn> key on the computer's internal keyboard.<br><br>**NOTE:** USB keyboards cannot emulate the <Fn> key if you are running an ACPI operating system such as Microsoft® Windows® XP. USB keyboards will only emulate the <Fn> key in non-ACPI mode (for example., when you are running a DOS).<br><br>Default setting: **Enabled**. |
| **Fast Boot** | Allows you to enable or disable the Fast Boot feature. The following options are available:<br><br>- **Minimal** — Boot quickly unless the BIOS has been updated, memory changed, or the previous POST did not complete.<br>- **Thorough** — Do not skip any steps in the boot process.<br>- **Auto** — Allow the operating system to control this setting (this works only when the operating system supports Simple Boot Flag).<br><br>Default setting: **Minimal** |
| **Intel® Fast Call for Help** | Used in conjunction with iAMT 4.0. Allows users to initiate contact with a management console while residing outside of the corporate infrastructure (i.e. remote location, behind a firewall or NAT, etc.) Use the check box to enable or disable this feature.<br><br>Default setting: **Disabled** |

| **Virtualization Support** | |
|---|---|
| **Option** | **Description** |
| **Virtualization** | Specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology.<br><br>Default setting: **Enabled**. |
| **VT for Direct I/O** | Specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology for Direct I/O.<br><br>Default setting: **Disabled**. |
| **Trusted Execution** | Specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. Virtualization Technology and Virtualization Technology for Direct I/O must be enabled to use this feature<br><br>Default setting: **Disabled**. |

| **Wireless** | |
|---|---|
| **Option** | **Description** |
| **Wireless Switch** | Allows you to determine the wireless devices that will be controlled by the wireless switch: **WWAN**, **WLAN**, and **Bluetooth®.** |
| **Wireless Devices** | Allows you to enable or disable the following wireless devices: **WWAN**, **WLAN**, and **Bluetooth.** |

| **Maintenance** | |
|---|---|
| **Option** | **Description** |
| **Service Tag** | Displays your computer's Service Tag. If for some reason the Service Tag was not already set, you would be able to use this field to set it.<br><br>If a Service Tag has not been set for this computer, the computer will automatically bring up this screen when you enter the BIOS. You will be prompted to enter the Service Tag. |
| **Asset Tag** | Allows you to create a system Asset Tag. The field can only be updated if the Asset Tag is not already set. |

| **System Logs** | |
|---|---|
| **Option** | **Description** |
| **BIOS Events** | Allows you to view and clear BIOS POST events. It includes the date and time of the event as well as the LED code. |
| **DellDiag Events** | Allows you to view the diagnostic results from Dell Diagnostics and PSA. It includes the time and date, the diagnostic and version which was run and the resulting code. |
| **Thermal Events** | Allows you to view and clear thermal events. It includes the date and time as well as the name of the event. |
| **Power Events** | Allows you to view and clear power events. It includes the date and time of the event as well as the power state and reason. |

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# Diagnostics

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## Device Status Lights

| | |
|---|---|
|  | Turns on when you turn on the computer and blinks when the computer is in a power management mode. |
|  | Turns on when the computer reads or writes data. |
|  | Turns on steadily or blinks to indicate battery charge status. |
|  | Turns on when wireless networking is enabled. |
|  | Turns on when a card with Bluetooth® wireless technology is enabled. To turn off only the Bluetooth wireless technology function, right-click the icon in the system tray and select **Disable Bluetooth Radio**. |

## Battery Status Lights

If the computer is connected to an electrical outlet, the battery light operates as follows:

- **Alternately blinking amber light and blue light** — An unauthenticated or unsupported, non-Dell AC adapter is attached to your laptop.
- **Alternately blinking amber light with steady blue light** — Temporary battery failure with AC adapter present.
- **Constantly blinking amber light** — Fatal battery failure with AC adapter present.
- **Light off** — Battery in full charge mode with AC adapter present.
- **Blue light on** — Battery in charge mode with AC adapter present.

## Battery Charge and Health

To check the battery charge, press and release the status button on the battery charge gauge to illuminate the charge-level lights. Each light represents approximately 20 percent of the total battery charge.

For example, if four lights are on, the battery has 80 percent of its charge remaining. If no lights appear, the battery has no charge.

To check battery health using the charge gauge, press and hold the status button on the battery charge gauge for at least 3 seconds. If no lights appear, the battery is in good condition and more than 80 percent of its original charge capacity remains. Each light represents incremental degradation. If five lights appear, less than 60 percent of the charge capacity remains, and you should consider replacing the battery.

## Keyboard Status Lights

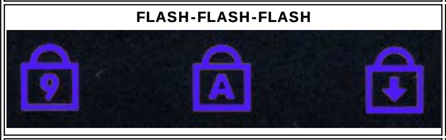
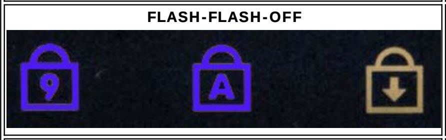
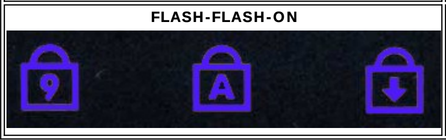
The green lights located above the keyboard indicate the following:

| | |
|---|---|
|  | Turns on when the numeric keypad is enabled. |
|  | Turns on when the Caps Lock function is enabled. |
|  | Turns on when the Scroll Lock function is enabled. |

## LED Error Codes

The following table shows the possible LED codes that may display in a no-POST situation.

| Appearance | Description | Next Step |
|---|---|---|
| **ON-FLASH-FLASH**<br> | No SODIMMs are installed | 1. Install supported memory modules.<br>2. If memory is already present, reseat the module(s) one at time in each slot.<br>3. Try known good memory from another computer or replace the memory.<br>4. Replace the system board. |
| **FLASH-ON-ON** | | |

| | | |
|---|---|---|
|  | System board error | 1. Reseat the processor.<br>2. Replace the system board.<br>3. Replace the processor. |
| **FLASH-ON-FLASH**<br> | Display panel error | 1. Reseat the display cable.<br>2. Replace the display panel.<br>3. Replace the video card/system board. |
| **OFF-FLASH-OFF**<br> | Memory compatibility error | 1. Install compatible memory modules.<br>2. If two modules are installed remove one and test. Try the other module in the same slot and test. Test the other slot with both modules.<br>3. Replace the memory.<br>4. Replace the system board. |
| **ON-FLASH-ON**<br> | Memory is detected but has errors | 1. Reseat the memory.<br>2. If two modules are installed remove one and test. Try the other module in the same slot and test. Test the other slot with both modules.<br>3. Replace the memory.<br>4. Replace the system board. |
| **OFF-FLASH-FLASH**<br> | Modem error | 1. Reseat the modem.<br>2. Replace the modem.<br>3. Replace the system board. |
| **FLASH-FLASH-FLASH**<br> | System board error | Replace the system board. |
| **FLASH-FLASH-OFF**<br> | Option ROM error | 1. Reseat the device.<br>2. Replace the device.<br>3. Replace the system board. |
| **OFF-ON-OFF**<br> | Storage device error | 1. Reseat the hard drive and optical drive.<br>2. Test the computer with just the hard drive and just the optical drive.<br>3. Replace the device that is causing the failure.<br>4. Replace the system board. |
| **FLASH-FLASH-ON**<br> | Video card error | Replace the system board. |

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# Removing and Replacing Parts

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# Specifications

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**NOTE:** Offerings may vary by region. For more information regarding the configuration of your computer, click Start→ Help and Support and select the option to view information about your computer.

| **System Information** | |
|---|---|
| Chipset | Mobile Intel® 5 series chipset (QM57) |
| Data bus width | 64 bits |
| DRAM bus width | dual-channel 64 bits<br><br>**NOTE:** You must install memory in pairs for the dual channel mode to work. |
| Flash EPROM | SPI 32 Mbits |
| PCI bus | 32 bits, 33 MHz |

| **Processor** | |
|---|---|
| Types | Intel Core™ i5 series<br>Intel Core i7 series |
| L2 cache | Intel Core i5-520M/540M Dual Core — 3 MB<br>Intel Core i7-620M Dual Core — 4 MB |
| External bus frequency | 1066 MHz |

| **Memory** | |
|---|---|
| Type | DDR3 SDRAM |
| Speed | 1066 MHz |
| Connectors | two SODIMM connectors |
| Module capacities | 1 GB, 2 GB, 4 GB |
| Minimum memory | 1 GB |
| Maximum memory | 8 GB<br><br>**NOTE:** Only 64-bit operating systems can detect memory capacities greater than 4 GB. |

| **Video** | |
|---|---|
| Type | E6410 — UMA or Discrete video controller<br>E6410 ATG — UMA |
| Controller | |
| UMA | Intel Graphics Media Accelerator HD |
| Discrete | NVIDIA Quadro NVS 3100M |
| Output | 15-pin VGA connector<br>20-pin DisplayPort connector<br><br>**NOTE:** DisplayPort, DVI, and VGA is offered through the docking station. |

| **Audio** | |
|---|---|
| Type | two-channel high-definition audio codec (HDA) |
| Controller | IDT 92HD81B Controller |
| Speaker | two |

| | |
|---|---|
| Internal speaker amplifier | 1 W channel |
| Volume controls | volume up, volume down, and mute buttons |

| **Communications** | |
|---|---|
| Modem | internal modem (optional) |
| Network adapter | 10/100/1000 Mbps Intel 82577LM Gigabit Ethernet Controller |
| Wireless | dedicated WLAN, WWAN, and Bluetooth® |
| GPS | mobile broadband mini-card |

| **ExpressCard** | |
|---|---|
| **NOTE:** The ExpressCard slot does NOT support PC Cards. | |
| ExpressCard connector | ExpressCard slot |
| Cards supported | 54 mm ExpressCard<br>34 mm ExpressCard<br>**NOTE:** You can order E6410 with either an ExpressCard slot or a PC card slot.<br>**NOTE:** E6410 ATG does not support ExpressCards. |

| **PC Card** | |
|---|---|
| **NOTE:** The PC card slot does NOT support ExpressCards. | |
| PC card connector | PC card slot |
| Cards supported | 54 mm PC Cards<br>**NOTE:** You can order E6410 with either a PC card or an ExpressCard slot.<br>**NOTE:** E6410 ATG supports PC Cards only. |

| **Secure Digital (SD) Memory Card Reader** | |
|---|---|
| Cards supported | SD / MMC / SDHC / SDHS / MiniSD / MicroSD / SDIO |

| **Contactless Smart Cards (Optional)** | |
|---|---|
| Supported Smart Cards and Technologies | ISO14443A — 106 kbps, 212 kbps, 424 kbps, and 848 kbps<br>ISO14443B — 106 kbps, 212 kbps, 424 kbps, and 848 kbps<br>ISO15693<br>HID iClass<br>FIPS201<br>NXP Desfire |

| **Fingerprint Reader (Optional)** | |
|---|---|
| Type | swipe fingerprint sensor |

| **Ports and Connectors** | |
|---|---|
| Audio | microphone connector, stereo headphone/ speaker connector |
| Video | one 15-pin VGA connector<br>one dual-mode DisplayPort connector |
| Network adapter | one RJ-45 connector |
| Modem | one RJ-11 connector |
| IEEE 1394 | one 4-pin connector |
| USB | three USB 2.0-compliant connectors<br>one eSATA/USB 2.0-compliant connector |
| Memory card reader | one 6-in-1 memory card reader |
| Smart card reader | integrated smart card reader |
| Mini-Card | two half-height mini-card slots |

| | |
|---|---|
| | one full-height mini-card slot |
| Docking connector | one E-Family 144−pin docking connector |

| **Drives** | |
|---|---|
| Hard drive | SATA 2 HDD<br>SATA 2 Mobile HDD |
| Optical drives | DVD<br>DVD+/-RW<br>Blu-ray™ |

| **Display** | **Latitude™ E6410** | **Latitude™ E6410 ATG** |
|---|---|---|
| Type and size | 358.14 mm (14.1 inches) diagonal TFT with white LED backlight | 358.14 mm (14.1 inches) diagonal TFT with white LED backlight |
| Active area (X/Y) | 303.55 mm x 189.65 mm (11.95 inches x 7.46 inches) | 303.55 mm x 189.65 mm (11.95 inches x 7.46 inches) |
| Dimensions | | |
| Height | 207 mm (8.14 inches) | 207 mm (8.14 inches) |
| Width | 320 mm (12.59 inches) | 320 mm (12.59 inches) |
| Operating angle | 0 degree (closed) to 160 degrees | 0 degree (closed) to 160 degrees |
| Display Option 1 | WXGA + Anti-Glare | WXGA |
| Maximum resolution | 1280(H) x 800 (V) at 262K colors | 1280(H) x 800 (V) at 262K colors |
| Maximum brightness | 220 nits | 730 nits |
| Refresh rate | 60 Hz | 60 Hz |
| Viewing angle | | |
| Horizontal | 40 degrees/40 degrees | 55 degree/55 degrees |
| Vertical | 15 degrees/30 degrees | 45 degrees/45 degrees |
| Pixel pitch | 0.2373 mm x 0.2373 mm | 0.2370 mm x 0.2370 mm |
| Display Option 2 | WXGA + Anti-Glare | WXGA (Touch feature) |
| Maximum resolution | 1440 (H) x 900 (V) at 262K colors | 1280(H) x 800 (V) at 262K colors |
| Typical brightness | 300 nits | 630 nits |
| Refresh rate | 60 Hz | 60 Hz |
| Viewing angle | | |
| Horizontal | 40 degrees/40 degrees | 55 degrees/55 degrees |
| Vertical | 15 degrees/30 degrees | 45 degrees/45 degrees |
| Pixel pitch | 0.2109 mm x 0.2109 mm | 0.2370 mm x 0.2370mm |

| **Keyboard** | |
|---|---|
| Number of keys | United States: 83 keys<br>Europe: 84 keys<br>Japan: 87 keys |
| Layout | QWERTY/AZERTY/Kanji |
| Backlit keyboard | optional |

| **Touchpad** | |
|---|---|
| Active area | |
| X-axis | 68 mm (2.67 inches) |
| Y-axis | 38 mm (1.49 inches) |

| **Battery** | |
|---|---|
| Type | 4-cell "smart" lithium ion (37 WHr)<br>6-cell "smart" lithium ion (60 WHr)<br>3-year life-time 9-cell "smart" lithium ion (81 WHr)<br>9-cell "smart" lithium ion (90 WHr)<br>12-cell "smart" lithium ion slice (88 WHr) |
| Charge time with computer off (with 90 W adapter) | 4-, 6-, 9-cell — approximately 1 hour to 80% capacity and 2 hours to 100% capacity.<br>12-cell — approximately 3 hours 20 minutes to 100% capacity. |
| Operating time | battery operating time varies depending on operating conditions and can significantly reduce under certain power-intensive conditions. |
| Life span | approximately 300 charge/discharge cycles |
| Dimensions | |

| | |
|---|---|
| Depth | |
| 4-cell/6-cell | 206.11 mm (8.11 inches) |
| 9-cell | 207.77 mm (8.18 inches) |
| 12-cell | 14.48 mm (0.57 inch) |
| Height | |
| 4-cell/6-cell | 19.81 mm (0.78 inch) |
| 9-cell | 22.10 mm (0.87 inch) |
| 12-cell | 217.17 mm (8.55 inches) |
| Width | |
| 4-cell/6-cell | 47.00 mm (1.85 inches) |
| 9-cell | 68.83 mm (2.71 inches) |
| 12-cell | 322.07 mm (12.68 inches) |
| Weight | |
| 4-cell | 235.87 g (0.52 lb) |
| 6-cell | 326.59 g (0.72 lb) |
| 9-cell | 480.81 g (1.06 lb) |
| 12-cell | 848.22 g (1.87 lb) |
| Voltage | 11.10 VDC |
| Temperature range | |
| Operating | 0 °C to 35 °C (32 °F to 95 °F) |
| Storage | –40 °C to 60 °C (–40 °F to 140 °F) |
| Coin-cell battery | 3 V CR2032 lithium coin cell |

| **AC Adapter** | |
|---|---|
| Input voltage | 100 V–240 V~ |
| Input current (maximum) | 1.5 A |
| Input frequency | 50 Hz–60 Hz |
| Output power | 65 W or 90 W |
| Output current | |
| 65 W (E6410 with UMA video only) | 3.34 A (continuous) |
| 90 W | 4.62 A (continuous) |
| Dimensions | |
| Depth | |
| 65 W | 127.00 mm (4.99 inches) |
| 90 W | 147.00 mm (5.78 inches) |
| Height | |
| 65 W | 16.00 mm (0.63 inch) |
| 90 W | 16.00 mm (0.63 inch) |
| Width | |
| 65 W | 66.04 mm (2.60 inches) |
| 90 W | 70.00 mm (2.75 inches) |
| Temperature range | |
| Operating | 0 °C to 35 °C (32 °F to 95°F) |
| Storage | –40 °C to 65 °C (–40 °F to 149 °F) |

| **Physical** | |
|---|---|
| Latitude E6410 | |
| Depth | 238.30 mm (9.38 inches) |
| Height | front height: 25.40 mm (1.00 inch)<br>back height: 31.20 mm (1.22 inches) |
| Width | 335.00 mm (13.10 inches) |
| Weight | 1.95 kg (4.30 lb) |
| Latitude E6410 ATG | |
| Depth | 245.80 mm (9.67 inches) |
| Height | front height: 31.20 mm (1.22 inches)<br>back height (with port cover):<br>39.50 mm (1.55 inches) |
| Width | 341.00 mm (13.42 inches) |
| Weight (minimum) | 2.68 kg (5.90 lb) |

| **Environmental** |
|---|

| | |
|---|---|
| Temperature range | |
| Operating | 0 °C to 35 °C (32 °F to 95 °F) |
| Non-operating | −40 °C to 65 °C (−40 °F to 149 °F) |
| Relative humidity (maximum) | |
| Operating | 10 % to 90 % (noncondensing) |
| Non-operating | 5% to 95 % (noncondensing) |
| Maximum vibration | |
| Operating | 0.66 Grms (2 Hz−600 Hz) |
| Non-operating | 1.30 Grms (2 Hz−600 Hz) |
| **NOTE:** Vibration is measured using a random-vibration spectrum that simulates user environment. | |
| Maximum shock | |
| Operating | 110 G (2 ms) |
| Non-operating | 160 G (2 ms) |
| **NOTE:** Shock is measured with hard drive in head-parked position and a 2-ms half-sine pulse. | |
| Altitude | |
| Operating | −15.20 m to 3048 m (−50 ft to 10,000 ft) |
| Non-operating | −15.20 m to 10,668 m (−50 ft to 35,000 ft) |

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# Access Panel

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

**WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.**

## Removing the Access Panel



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Loosen the captive screw that secures the access panel to the base of the computer.
5. Slide the access panel toward the front of the computer.
6. Lift and remove the access panel off of the computer.

## Replacing the Access Panel

To replace the access panel, perform the above steps in reverse order.

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# ATG Port Cover

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the ATG Port Cover



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in [Before Working Inside Your Computer](#).
2. Pry and remove the ATG port cover away from the base of the computer.

## Replacing the ATG Port Cover

To replace the ATG port cover, perform the above steps in reverse order.

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[Back to Removing and Replacing Parts](#)

# Battery

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Battery



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Slide the battery latches toward the center of the computer.
3. Slide the battery out of the computer and remove it.

## Replacing the Battery

To replace the battery, perform the above steps in reverse order.

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# Bluetooth Card

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Bluetooth Card




**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the SIM card.
5. Remove the SD card.
6. Remove the ExpressCard.
7. Remove the Smart card.
8. Remove the hinge covers.
9. Remove the access panel.
10. Remove the optical drive.
11. Remove the hard drive.
12. Remove the LED cover.
13. Remove the keyboard.
14. Remove the coin-cell battery.
15. Remove the memory.
16. Remove the WWAN card.
17. Remove the WLAN card.
18. Remove the Latitude ON™ Flash/CMG module.
19. Remove the Fingerprint Reader.
20. Remove the Heat Sink and Processor Fan.
21. Remove the screw that secures the Bluetooth card to the computer.

22. Disconnect the Bluetooth cable from the computer.

23. Remove the Bluetooth card from the computer.

## Replacing the Bluetooth Card

To replace the Bluetooth card, perform the above steps in reverse order.

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# Camera

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Camera



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Remove the display bezel.
4. Loosen the captive screw that secures the camera to the computer.
5. Remove the camera from the slot on the computer.
6. Disconnect the data cable to remove the camera from the computer.

## Replacing the Camera

To replace the camera, perform the above steps in reverse order.

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# ExpressCard Cage

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the ExpressCard Cage



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the Memory Card.
5. Remove the ExpressCard.
6. Remove the access panel.
7. Remove the hinge covers.
8. Remove the LED cover.
9. Remove the keyboard
10. Remove the hard drive.
11. Remove the fingerprint reader.
12. Remove the Heat Sink and Processor fan.
13. Remove the display assembly.
14. Remove the palm rest.
15. Remove the screws that secures the ExpressCard cage to the computer.

16. Lift the ExpressCard cage and slide the ExpressCard cage out of the computer.

## Replacing the ExpressCard Cage

To replace the ExpressCard cage, perform the above steps in reverse order.

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# Coin-cell Battery

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Coin-cell Battery



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the access panel.
5. Disconnect the coin-cell battery cable from the system board.

6. Lift and remove the coin-cell battery out of its socket.

## Replacing the Coin-cell Battery

To replace the coin-cell battery, perform the above steps in reverse order.

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# Display Assembly

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Display Assembly



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG port cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the hinge covers.
5. Remove the access panel.
6. Disconnect and unthread the antennae cable from the WLAN and/or WWAN card.
7. Disconnect and unthread the touch screen cable from the system board. (Only applies to E6410 ATG computer).
8. Loosen the captive screws that secure the display cable to the system board.
9. Disconnect and unthread the display data cable from the system board.
10. Remove the screws that secure the display assembly to the computer.
11. Lift and remove the display assembly from the computer.

## Replacing the Display Assembly

To replace the display assembly, perform the above steps in reverse order.

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# Display Bezel

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Display Bezel



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Starting from the bottom, gently pry the display bezel inside out from the display assembly using a plastic scribe.
4. When all the snaps loosen, remove the display bezel from the display assembly.

## Replacing the Display Bezel

To replace the display bezel, perform the above steps in reverse order.

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# Display Panel

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Display Panel



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the Display Bezel.
5. Remove the screws that secure the display panel to the display assembly.
6. Remove the display panel from the top cover and lay it face down on the palm rest.
7. Disconnect the touch screen cable (1), and EDP cable (2), from the LCD panel.
8. Disconnect the touch screen cable if present.
9. Remove the display panel.
10. Remove the screws that secure the left display bracket to the display panel.
11. Remove the screws that secure the right display bracket to the display panel.

## Replacing the Display Panel

To replace the display panel, perform the above steps in reverse order.

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# ExpressCard

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the ExpressCard



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Press and release the card eject button.
4. Press the card eject button to release the card.
5. Remove the card out of the computer.

## Replacing the ExpressCard

To replace the ExpressCard, perform the above steps in reverse order.

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# Processor Fan

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Processor Fan



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the access panel.
5. Disconnect the processor fan cable from the system board.

6. Remove the screws that secure the processor fan onto the heat sink.

7. Remove the processor fan from the computer.

## Replacing the Processor Fan

To replace the processor fan, perform the above steps in reverse order.

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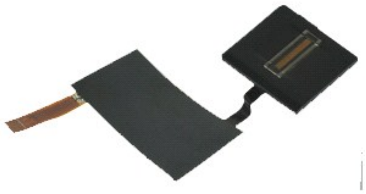
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# Fingerprint Reader

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Fingerprint Reader



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the optical drive.
5. Remove the access panel.
6. Remove the LED cover.
7. Remove the keyboard.
8. Loosen the single captive screw (labeled 'F') on the bottom of the computer, securing the fingerprint reader.
9. Disconnect the fingerprint reader data cable from the system board.
10. Peel off the Mylar to release the cable and fingerprint reader from the computer to remove the fingerprint reader.

## Replacing the Fingerprint Reader

To replace the fingerprint reader, perform the above steps in reverse order.

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# Hard Drive

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Hard Drive



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the screws that secure the hard drive to the computer.
5. Slide and remove the hard drive out of the computer.
6. Remove the screw that secures the hard drive caddy to the hard drive.
7. Pull and remove the hard drive caddy away from the hard drive.

## Replacing the Hard Drive

To replace the hard drive, perform the above steps in reverse order.

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# Heat Sink and Processor Fan

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Heat Sink and Processor Fan



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery
4. Remove the access panel
5. Remove the coin-cell battery
6. Disconnect the fan cable from the system board.

7. Loosen the captive screws on the heat sink.

8. Lift the edge of the heat sink that is closest to the center of the computer, and then slide the heat sink out of the computer.

## Replacing the Heat Sink and Processor Fan

To replace the heat sink and processor fan, perform the above steps in reverse order.

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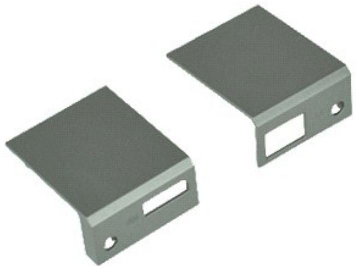
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# Hinge Covers

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Hinge Covers



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the screws that secure the hinge covers to the computer.
5. Slide the hinge covers toward the back of the computer and remove the hinge cover.

## Replacing the Hinge Covers

To replace the hinge covers, perform the above steps in reverse order.

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# IEEE 1394 Port

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the IEEE 1394 Port



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the SIM card.
5. Remove the SD card.
6. Remove the ExpressCard.
7. Remove the Smart card.
8. Remove the hinge covers.
9. Remove the access panel.
10. Remove the optical drive.
11. Remove the hard drive.
12. Remove the LED cover.
13. Remove the keyboard.
14. Remove the coin-cell battery.
15. Remove the memory.
16. Remove the WWAN card.
17. Remove the WLAN card.
18. Remove the Latitude On™ Flash/CMG module.
19. Remove the Fingerprint Reader.
20. Remove the Heat Sink and Processor Fan.
21. Remove the Display Assembly.
22. Peel back the Ferrite sheet covering the firewire cable.

23. Disconnect and unthread the firewire data cable from the system board.

24. Remove the screws that secure the IEEE 1394 board to the computer.

25. Remove the IEEE 1394 board from the computer.

## Replacing the IEEE 1394 Port

To replace the IEEE 1394 port, perform the above steps in reverse order.

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# I/O port card

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the I/O port card



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG port cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the optical drive.
5. Remove the hard drive.
6. Remove the hinge covers.
7. Remove the access panel.
8. Remove the coin-cell battery.
9. Remove the Heat Sink and Processor fan.
10. Remove the LED cover.
11. Remove the keyboard.
12. Remove the display assembly.
13. Remove the palm rest.
14. Remove the modem.
15. Remove the modem connector.
16. Remove the ExpressCard cage.
17. Remove the palm rest.
18. Remove the system board.
19. Remove the screw that secures the I/O port card to the computer.

20. Lift the left edge of the I/O port card and remove the I/O port card from the computer.

## Replacing the I/O port card

To replace the I/O port card, perform the above steps in reverse order.

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# Keyboard

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Keyboard



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG port cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the LED cover.
5. Remove the screws that secure the keyboard to the computer.

6. Use a plastic tab to lift the back edge of the keyboard to release the keyboard.

7. Slide the keyboard toward the back of the computer and remove the keyboard from the computer.

## Replacing the Keyboard

To replace the keyboard, perform the above steps in reverse order.

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# Latitude ON™ Flash/CMG Module

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Latitude ON Flash/CMG Module



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG port cover (applicable on E6410 ATG computer only).
1. Remove the battery.
4. Remove the left hinge cover. (See Removing Hinge Covers).
5. Remove the screw that secures the Latitude ON Flash/CMG module.

6. Remove the Latitude ON Flash/CMG module.

## Replacing the Latitude ON Flash/CMG Module

To replace the Latitude ON Flash/CMG Module, perform the above steps in reverse order.

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# LED Cover

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the LED Cover



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the battery.
3. Gently pry up one end of the LED cover and remove it.

## Replacing the LED Cover

To replace the LED cover, perform the above steps in reverse order.

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# Memory

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Memory Module



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the access panel.
5. Spread apart the securing clips on each end of the memory module connector until the memory module pops up.

6. Slide and remove the memory module out of the socket.

## Replacing the Memory Module

To replace the memory module, perform the above steps in reverse order.

Back to Removing and Replacing Parts

# Modem

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Modem



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the LED Cover.
5. Remove the keyboard.
6. Remove the screw that secures the modem to the computer.
7. Using the Mylar tab lift the modem up slightly, and then slide the modem out of its slot.
8. Disconnect the modem cable from the modem to remove the modem from the computer.

## Replacing the Modem

To replace the modem, perform the above steps in reverse order.

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# Modem Connector

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Modem Connector



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the Memory .
5. Remove the ExpressCard.
6. Remove the optical drive.
7. Remove the hard drive.
8. Remove the hinge covers.
9. Remove the access panel.
10. Remove the Latitude ON™ Flash/CMG Module.
11. Remove the WWAN card.
12. Remove the WLAN card.
13. Remove the coin-cell battery.
14. Remove the LED cover.
15. Remove the keyboard.
16. Remove the fingerprint reader.
17. Remove the display assembly.
18. Remove the ExpressCard cage.
19. Remove the palm rest.
20. Remove the system board.
21. Unthread the modem connector cable from the computer.

22. Lift the modem connector out of its slot and remove.

## Replacing the Modem Connector

To replace the modem connector, perform the above steps in reverse order.

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# Modem Plug

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

**WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.**

## Removing the Modem Plug



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG port cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Insert a pin it into the modem plug eject hole on the modem port plug to release and remove the snap securing it.

## Replacing the Modem Plug

To replace the modem plug, perform the above steps in reverse order.

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# Optical Drive

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## Removing the Optical Drive



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the screw that secures the optical drive to the computer.
4. Press and release the optical drive latch.
5. Pull the optical drive out of the computer

## Replacing the Optical Drive

To replace the optical drive, perform the above steps in reverse order.

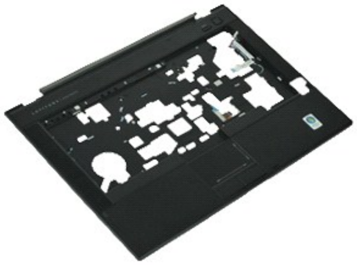
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# Palm Rest

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## Removing the Palm Rest



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the SIM card.
5. Remove the SD card.
6. Remove the ExpressCard.
7. Remove the Smart card.
8. Remove the hinge covers.
9. Remove the access panel.
10. Remove the optical drive.
11. Remove the hard drive.
12. Remove the LED cover.
13. Remove the keyboard.
14. Remove the coin-cell battery.
15. Remove the memory.
16. Remove the WWAN card.
17. Remove the WLAN card.
18. Remove the Latitude ON™ Flash/CMG module.
19. Remove the coin-cell battery.
20. Remove the Fingerprint Reader.
21. Remove the Heat Sink and Processor Fan.
22. Remove the Display Assembly.
23. Remove the 8 screws (Number 1 is a captive screw) from the bottom of the computer.
    **NOTE:** If the computer is installed with a standard palm rest, see the fingerprint reader removal instructions from step 8 to loosen the 9th screw which is a captive screw.
24. Remove the screws that secure the palm rest to the computer.
25. Disconnect the speaker cable (1), power button cable (2), touch pad cable(3), and RFID cable (4).
    **NOTE:** RFID cable is available only if your computer is purchased with contactless smart card solution.
26. Lift the back edge of the palm rest and pull on the right side to release the right snaps. Once the right snaps release, pull the palm rest forward along the front to release the front snaps and remove the palm rest.

## Replacing the Palm Rest

To replace the palm rest, perform the above steps in reverse order.

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# Power Connector

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## Removing the Power Connector



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery
4. Remove the Memory.
5. Remove the ExpressCard.
6. Remove the optical drive.
7. Remove the hard drive.
8. Remove the hinge covers.
9. Remove the access panel.
10. Remove the Latitude ON™ Flash/CMG module.
11. Remove the WWAN card.
12. Remove the WLAN card.
13. Remove the coin-cell battery.
14. Remove the LED cover.
15. Remove the keyboard.
16. Remove the Fingerprint Reader.
17. Remove the Display Assembly.
18. Remove the ExpressCard cage.
19. Remove the palm rest.
20. Remove the system board.
21. Unthread the power source cable from the computer.

22. Lift up the power source port to remove from the computer.

## Replacing the Power Connector

To replace the power connector, perform the above steps in reverse order.

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# Processor

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Processor



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the access panel.
5. Remove the Heat Sink and Processor fan.
6. Rotate processor cam lock counter clock-wise.
7. Lift the processor and remove it from the computer.

## Replacing the Processor

To replace the processor, perform the above steps in reverse order.

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# SD Card

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## Removing the SD Card



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Press in on the SD card and release the SD card.
3. Pull and remove the SD card out of the computer.

## Replacing the SD Card

To replace the SD card, perform the above steps in reverse order.

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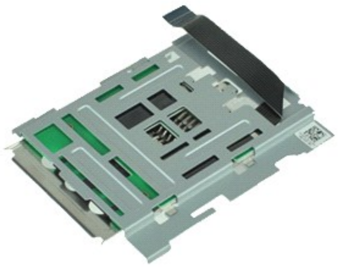
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# SD Card Reader

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the SD Card Reader



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery
4. Remove the Memory.
5. Remove the ExpressCard.
6. Remove the optical drive
7. Remove the hard drive
8. Remove the hinge covers
9. Remove the access panel
10. Remove the Latitude ON™ Flash/CMG Module.
11. Remove the WWAN card.
12. Remove the WLAN card.
13. Remove the coin-cell battery.
14. Remove the LED cover
15. Remove the keyboard
16. Remove the fingerprint reader.
17. Remove the display assembly.
18. Remove the ExpressCard cage.
19. Remove the system board.
20. Disconnect the SD card reader cable from the system board.

21. Lift the 2 hooks while pulling the smart card reader to the right of the computer.

22. Remove the smart card reader from the computer.

## Replacing the SD Card Reader

To replace the SD card reader, perform the above steps in reverse order.

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# SIM Card

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## Removing the SIM Card



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Press and release the SIM card.

5. Slide and remove the SIM card out of the computer.

## Replacing the SIM Card

To replace the SIM card, perform the above steps in reverse order.

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# Smart Card

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the Smart Card



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Pull and remove the smart card out of the computer.

## Replacing the Smart Card

To replace the smart card, perform the above steps in reverse order.

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# System Board

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the System Board



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG port cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the SIM card.
5. Remove the SD card.
6. Remove the ExpressCard.
7. Remove the Smart card.
8. Remove the hinge covers.
9. Remove the access panel.
10. Remove the optical drive.
11. Remove the hard drive.
12. Remove the LED cover.
13. Remove the keyboard.
14. Remove the coin-cell battery.
15. Remove the memory.
16. Remove the WWAN card.
17. Remove the WLAN card.
18. Remove the Latitude ON™ Flash/CMG module.
19. Remove the Fingerprint Reader.
20. Remove the Heat Sink and Processor Fan.
21. Remove the Display Assembly.
22. Remove the palm rest.
23. Disconnect the power connector from the system board.
24. Disconnect the smart card reader and IEEE 1394 cables from system board.
25. Remove the screws that secure the system board to the computer.
26. Starting in the back right corner and separate the system board from the I/O board connector.
27. Lift the back edge of the system board until all the connectors on the left side are separated and slide the system board towards the rear and remove from the computer.

## Replacing the System Board

To replace the system board, perform the above steps in reverse order.

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# WLAN Card

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the WLAN Card




**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the access panel.
5. Disconnect the antenna cables from the WLAN card.

6. Remove the screw that secures the WLAN card to the computer.

7. Remove the WLAN card from the computer.

## Replacing the WLAN Card

To replace the WLAN card, perform the above steps in reverse order.

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# WWAN Card

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**

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## Removing the WWAN Card



**NOTE:** You may need to install Adobe® Flash® Player from **Adobe.com** in order to view the illustrations below.

1. Follow the procedures in Before Working Inside Your Computer.
2. Remove the ATG Port Cover (applicable on E6410 ATG computer only).
3. Remove the battery.
4. Remove the access panel.
5. Disconnect any antenna cables that may be connected to the WWAN card.
6. Remove the screw that secures the WWAN card in the computer.
7. Remove the WWAN card from the computer.

## Replacing the WWAN Card

To replace the WWAN card, perform the above steps in reverse order.

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# Working on Your Computer

**Dell™ Latitude™ E6410/E6410 ATG Service Manual**



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## Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- Ensure that you have performed all the steps specified in this section.
- You have read the safety information that shipped with your computer.
- A component can be replaced or—if purchased separately—installed by performing the removal procedure in reverse order.

**WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance.**

**CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.**

**CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.**

**CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.**

**CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.**

**NOTE:** The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning Off Your Computer).
3. If the computer is connected to a docking device (docked), undock it.

**CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.**

4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Where applicable, disconnect any adapters from the computer.
6. Close the display and turn the computer upside-down on a flat work surface.

**CAUTION: To avoid damaging the system board, you must remove the main battery before you service the computer.**

7. Remove the main battery.
8. Turn the computer top-side up.
9. Open the display.
10. Press the power button to ground the system board.

**CAUTION: To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.**

**CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.**

11. Remove any installed ExpressCards or Smart Cards from the appropriate slots.
12. Remove the hard drive.

## Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- #0 Phillips screwdriver
- #1 Phillips screwdriver
- Small plastic scribe

## Turning Off Your Computer

**CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.**

1. Shut down the operating system:
   - **In Windows 7®:**

     Click **Start** and click **Shut Down**.

   - **In Windows Vista®:**

     Click **Start** **,** then click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down**.



   - **In Windows® XP:**

     Click **Start**→ **Turn Off Computer**→ **Turn Off**.

     The computer turns off after the operating system shutdown process is complete.

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 4 seconds to turn them off.

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## After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

**CAUTION: To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.**

1. Connect any external devices, such as a port replicator, battery slice, or media base, and replace any cards, such as an ExpressCard.
2. Connect any telephone or network cables to your computer.

**CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.**

3. Replace the Battery.
4. Connect your computer and all attached devices to their electrical outlets.
5. Turn on your computer.

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